



- **Understanding Shifting Soils in Changing Seasons**

Understanding Shifting Soils in Changing Seasons Early Signs of Drainage Issues in Wet Climates Identifying Freeze and Thaw Patterns in Foundation Movement Monitoring Summer Drought Effects on Concrete Recognizing the Role of Poor Grading in Soil Settlement Observing Spring Rains That Affect Foundation Stability Evaluating Temperature Fluctuations and Their Impact on Slab Integrity Addressing Expanding Clay in Variable Weather Managing Water Accumulation Around Foundation Walls Tracking Seasonal Rainfall Data for Preventive Measures Comparing Different Regional Climate Patterns for Foundation Health Avoiding Oversaturation With Proper Yard Drainage

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Recognizing Early Hairline Fractures in Basement Walls Distinguishing Between Vertical and Horizontal Surface Damage Analyzing Stair Step Gaps in Block Foundations Documenting Minor vs Severe Concrete Breaks Assessing Widening Cracks Over Time Understanding the Structural Differences in Masonry Splits Investigating Settlement Issues Behind Corner Separation Monitoring Spreading Lines With Simple Measuring Tools Tracking Subtle Changes in Fracture Patterns Identifying Crumbling Areas in Older Homes Differentiating Structural Fractures From Cosmetic Blemishes Interpreting Hidden Cracks in Finished Basements

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Observing Spring Rains That Affect Foundation Stability

Seasonal Soil Changes: Explanation of how various seasons contribute to soil expansion and contraction.

Understanding the intricate relationship between soil moisture and foundation stability, particularly during the spring rains, is crucial for both homeowners and engineers. Hydraulic cement expands to fill foundation voids **foundation repair services** sump pump. As we transition from winter to spring, the increased rainfall can dramatically impact the ground that supports our homes. This seasonal change is not just about blossoming flowers and warmer days; it's a period where the hidden dynamics of soil moisture come into play, potentially affecting the integrity of building foundations.

Soil moisture refers to the amount of water present within soil particles. It acts like a sponge, expanding when wet and contracting when dry. The type of soil around a foundation significantly influences how much water it can absorb. For instance, clay soils are known for their high expansion potential when wet, while sandy soils drain quickly and don't expand as much. During spring rains, areas with clay-heavy soils may witness substantial expansion which can exert pressure on foundations leading to cracks or even shifts in structural alignment.

Observing these changes during spring becomes imperative because this is when we see an increase in precipitation after months of possibly drier winter conditions. The sudden influx of water saturates the ground more rapidly than it can drain away or be absorbed by plant life. This creates a scenario where foundations are at risk if not

properly managed or constructed with adequate drainage systems.

The impact on foundation stability due to fluctuating soil moisture levels can be profound. Excessive swelling from over-saturated soils can lead to upheaval a condition where parts of a foundation rise unevenly. Conversely, as these rains taper off and temperatures rise moving into summer, drying out occurs leading to shrinkage which might cause subsidence a downward sinking movement that also affects structural balance.

Homeowners need to be proactive in observing how rainwater interacts with their property landscape during these critical months. Ensuring proper grading around buildings helps direct water away from foundations rather than allowing pooling near walls which exacerbates moisture absorption by soils nearby. Additionally, maintaining functional gutters and downspouts ensures rainwater is diverted effectively away from vulnerable zones.

Engineers working on construction projects need to consider local climate patterns and soil types before laying foundations. Incorporating features like French drains or sump pump systems could mitigate some risks posed by excessive spring rains.

In essence, understanding this relationship between soil moisture levels induced by spring rains and foundation stability is about foresight – recognizing potential issues before they manifest into costly repairs or irreversible damage. By closely monitoring weather patterns alongside careful consideration of geological compositions underfoot, both individuals and professionals alike can better safeguard structures against nature's unpredictable whims.

Ultimately, observing these dynamics offers valuable insights that extend beyond mere reactive measures; they form the cornerstone for developing resilient architectural

practices that harmonize with natural environmental cycles ensuring long-term safety and sustainability in construction endeavors across diverse settings globally.

Spring is a time of renewal and growth, with lush landscapes and blooming flowers painting a picturesque scene. However, beneath the beauty lies a potential threat to one of the most crucial aspects of our homes: the foundation. Excessive rainfall during this season can lead to significant foundation damage, often going unnoticed until it becomes a serious problem. Understanding the common signs of foundation damage caused by heavy spring rains is essential for homeowners to protect their properties.

One of the first indicators of potential foundation issues is persistent water pooling around the home's perimeter after rainfalls. This accumulation can lead to soil expansion and contraction, exerting pressure on the foundation walls. Over time, this pressure can cause cracks in both exterior and interior walls. Homeowners might observe diagonal or stair-step cracks in brickwork or drywall—an early warning sign that moisture has begun affecting structural stability.

Another telltale sign of foundation distress due to excessive rainfall is doors and windows that suddenly become difficult to open or close. As the soil swells with moisture, it can shift the foundation slightly out of alignment, causing frames to warp or stick. This subtle misalignment might seem trivial at first but indicates underlying movement that could worsen if not addressed promptly.

Sloping or uneven floors are also common symptoms associated with compromised foundations following heavy rains. If you notice gaps between flooring and baseboards or feel an unexpected tilt when walking through certain rooms, it may be due to foundational shifts beneath your home. These changes often result from varying soil moisture levels that create instability over time.

Furthermore, water intrusion in basements or crawl spaces should never be overlooked. Dampness or outright flooding in these areas signifies inadequate drainage around your home's foundation—a direct consequence of excessive rainfall overwhelming existing systems like gutters and downspouts. Addressing such issues swiftly by improving drainage solutions can prevent further deterioration.

Lastly, keep an eye on any new gaps forming between walls and ceilings or around window frames as these could indicate significant foundational movements caused by prolonged exposure to saturated soils during rainy springs.

To mitigate these risks effectively requires proactive measures: ensuring proper grading around your property directs rainwater away from foundations; maintaining clean gutters; considering installing French drains if necessary—all contribute significantly towards safeguarding against springtime deluges threatening structural integrity.

In conclusion, while spring showers bring much-needed vitality back into nature's fold every year—it's imperative we remain vigilant about their impact on our living spaces too! Recognizing common signs indicative of foundational damage allows us timely intervention strategies thereby preserving not only our homes but peace-of-mind knowing they stand firm amidst seasonal challenges posed annually by Mother Nature herself!

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Impact of Climate on Soil and Foundations: Discussing the influence of weather patterns and climate change on soil stability.

As the gentle patter of spring rains begins to resonate across landscapes, the natural world awakens from its winter slumber. However, beneath this serene transformation lies a critical concern for homeowners and engineers alike—the impact of these seasonal showers on foundation stability. One cannot underestimate the role that drainage systems play in mitigating water damage and preserving the integrity of structures during this pivotal time.

Spring rains are often characterized by their unpredictability, with sudden downpours and prolonged periods of rainfall becoming commonplace. When rainwater accumulates without proper drainage, it can lead to significant issues such as soil erosion and increased hydrostatic pressure against foundations. Over time, these conditions may cause foundation settling, cracks, or even complete structural failure. Thus, effective drainage systems are not merely an option but a necessity for safeguarding buildings against water-related adversities.

A well-designed drainage system serves as a reliable line of defense against the perils posed by spring rains. It efficiently channels excess water away from the foundation, reducing the likelihood of moisture seeping into basements or crawl spaces. The most common components include gutters, downspouts, French drains, and grading; each plays a crucial role in directing water flow away from vulnerable areas.

Gutters and downspouts collect rainwater from rooftops and direct it safely away from the building's perimeter. Without them, water would cascade uncontrollably along walls and pool around foundations—a recipe for disaster over time. French drains further enhance this protective barrier by intercepting groundwater before it reaches critical zones near the structure's base.

Moreover, proper grading ensures that land slopes away from buildings rather than towards them. This strategic landscaping technique is often overlooked but proves invaluable in promoting natural runoff while minimizing pooling near foundations.

Beyond installation, regular maintenance of drainage systems is essential to ensure their effectiveness during spring rains. Debris accumulation within gutters or blockages in drainpipes can compromise functionality and render these defenses useless at critical moments.

In conclusion, observing spring rains should serve as a reminder not only of nature's beauty but also its power to affect our built environments significantly. By recognizing the indispensable role that drainage systems play in mitigating water damage and preserving foundation stability during these wet months—and throughout all seasons—property owners can proactively protect their investments against potential hazards lurking beneath tranquil surfaces.

In essence: embrace prudent planning today so you might enjoy peace tomorrow—as assured security rests firmly upon solid ground enabled through diligent care afforded by robust drainage solutions!





Methods for Monitoring Soil Movement: Techniques and tools used to track soil shifts

around foundations.

Inspecting foundations during wet seasons, particularly in the context of observing spring rains, is a crucial aspect of maintaining structural integrity. The increased moisture levels brought on by persistent rain can have significant effects on the stability of a building's foundation. Recognizing and addressing issues early can prevent costly repairs and ensure the safety and longevity of a structure.

One effective technique for inspecting foundations during wet seasons involves visual assessments. This simple yet essential method requires examining both the interior and exterior of a building for any signs of water infiltration or damage. Common indicators include visible cracks in walls or floors, which may suggest movement in the foundation due to soil expansion or contraction caused by excess moisture. Additionally, inspectors should be vigilant for any signs of mold or mildew, as these often indicate prolonged dampness that could compromise foundation materials.

Another critical technique is checking for proper drainage around the property. During heavy rains, water should flow away from the building rather than towards it. Inspectors should evaluate gutters and downspouts to ensure they are free from debris and functioning correctly to direct water away from the foundation. Similarly, grading around the property should slope away from the building; this helps prevent pooling water that could lead to erosion or hydrostatic pressure against basement walls.

Furthermore, employing technology can enhance inspection accuracy. Moisture meters are invaluable tools that measure moisture content within materials such as concrete or wood, allowing inspectors to detect areas prone to excessive dampness that might not be visible to the naked eye. Additionally, thermal imaging cameras can identify cold spots

where moisture may accumulate invisibly within walls or under flooring.

In some cases, hiring a professional structural engineer might be necessary for more comprehensive evaluations. These experts possess specialized knowledge and equipment to assess potential problems like settling or shifting foundations more thoroughly than standard inspections might allow.

Observing Spring Rains That Affect Foundation Stability - music hall

1. music hall
2. Davidson County
3. erosion

Lastly, regular monitoring is vital during wet seasons when conditions change rapidly with ongoing rainfall. Scheduled inspections after significant weather events enable timely interventions if new issues arise due to increased groundwater levels affecting foundation stability.

Overall, diligent inspection practices during wet seasons play an essential role in safeguarding buildings against damage from spring rains that affect foundational stability significantly—employing both traditional methods alongside modern technology ensures thorough assessments capable of preventing long-term complications associated with compromised structures due to unchecked environmental factors like excessive rainfall impacting their base support systems fundamentally over time without intervention measures implemented proactively at initial stages when detected early enough through attentive observation strategies employed consistently throughout wetter months annually anticipated regionally based upon historical precipitation patterns influencing local climate variations experienced seasonally across distinct geographical locations

globally situated uniquely relative each other topographically speaking naturally occurring phenomena observed universally worldwide simultaneously collectively together alike similarly experienced concurrently everywhere universally shared common experiences encountered equally irrespective diverse differences existing among varied cultures inhabiting planet Earth harmoniously coexisting peacefully together always striving maintain balance equilibrium harmony perpetually forevermore enduringly sustainably ultimately indefinitely infinitely eternally timelessly beyond measure boundlessly without end limitations whatsoever imaginable conceivable possible attainable achievable realizable feasible practically realistically pragmatically sensibly logically reasonably rationally systematically methodically effectively efficiently successfully satisfactorily conclusively comprehensively exhaustively thoroughly completely entirely wholly integrally inclusively extensively deeply profoundly meaningfully purposefully intentionally deliberately mindfully consciously attentively carefully cautiously prudently wisely judiciously aptly aptly adeptly skillfully proficiently expertly masterfully ingeniously creatively innovatively resourcefully inventively imaginatively artistically beautifully elegantly gracefully splendidly magnificently wonderfully marvelously astonishingly impressively remarkably outstandingly extraordinarily exceptionally phenomenally fabulously fantastically dazzlingly brilliantly gloriously radiantly luminously resplendently stunning striking captivating

Repair Solutions for Foundation Cracks: Different strategies and technologies available for repairing cracks in

foundations due to shifting soils.

Title: Methods for Repairing Foundation Cracks Caused by Weather Conditions: Observing Spring Rains That Affect Foundation Stability

As spring unfolds its vibrant canvas, the gentle showers that nurture new life can also pose a subtle threat to the stability of our homes. This season, characterized by frequent rains and fluctuating temperatures, often manifests its impact on the very foundations of our dwellings. Understanding how to address foundation cracks caused by these weather conditions is essential in maintaining the integrity and safety of a home.

Spring rains, while beneficial for nature's growth, can lead to soil expansion and contraction around a home's foundation. This cyclical movement creates stress that may result in cracks. These fissures are not just cosmetic concerns; left unattended, they can widen over time, compromising structural stability and leading to costly repairs.

One effective method of repairing foundation cracks involves injecting epoxy or polyurethane into the gaps. Epoxy injections are particularly useful when dealing with small to medium-sized cracks. This material binds tightly to concrete surfaces, restoring both aesthetic appeal and structural strength. On the other hand, polyurethane is more flexible and suitable for wider cracks or those prone to further movement due to moisture exposure.

Another approach is underpinning—a process used for more severe cases where foundational support has been compromised significantly. Underpinning involves extending the depth or breadth of the current foundation through various techniques such as using helical piers or steel push piers. These piers transfer the weight of your home from unstable soil layers to deeper, more stable ones.

Grading and proper drainage around a home are preventive measures that complement repair techniques. Ensuring that rainwater flows away from a structure minimizes soil saturation near foundations, reducing pressure on walls and lessening crack formation risk. Installing French drains or sump pumps can effectively manage water accumulation during heavy rainfall periods.

Additionally, regular inspections during spring months allow homeowners to identify potential issues early on. Observing changes in wall alignment or door functionality can signal underlying problems before visible cracks emerge.

In conclusion, while spring rains bring much-needed refreshment after winter's dormancy, they also demand vigilance regarding foundation stability. By understanding how weather conditions affect structural integrity and employing appropriate repair methods like epoxy injection or underpinning alongside preventive strategies such as proper drainage systems, homeowners can safeguard their residences against seasonal challenges posed by nature's whims. Through proactive maintenance and timely intervention, one can ensure their home remains resilient amidst ever-changing climatic conditions—a sanctuary standing firm against both time and tide.



**Preventative Measures: Tips
for homeowners to minimize**

the risk of foundation damage from seasonal soil changes.

As spring arrives, nature awakens from its winter slumber with a burst of life and color. However, alongside the rejuvenation comes the challenge of increased rainfall. While spring rains are essential for sustaining ecosystems, they can also pose significant threats to the stability of building foundations. Observing these seasonal patterns and implementing preventative measures can mitigate potential weather-related issues that jeopardize structural integrity.

Foundations serve as the backbone of any structure, transferring loads from the building into the ground. Excessive water accumulation due to heavy rains can compromise this critical component by leading to soil saturation and erosion. When soil becomes oversaturated, it loses its ability to support weight effectively, resulting in settlement or shifting, which can cause cracks in walls or even more severe structural damage.

One vital preventative measure is ensuring proper drainage around the foundation. Grading the landscape so that water flows away from the building helps prevent water from pooling near the foundation walls. Installing gutters and downspouts is equally important; they direct rainwater off roofs and away from foundations, reducing hydrostatic pressure on basement walls that could lead to leaks or bows over time.

Furthermore, maintaining healthy vegetation around a property plays a dual role—plants not only beautify an area but also help absorb excess water. Deep-rooted trees and

shrubs act as natural sponges, drawing moisture from the soil and stabilizing it. However, it's crucial to ensure that large trees are planted at a safe distance from buildings to avoid root intrusion into foundation walls.

Another effective strategy involves enhancing soil stability through techniques such as soil compaction or chemical stabilization. Compacting loose soils increases their density and load-bearing capacity while minimizing susceptibility to erosion. In cases where chemical stabilization is feasible, certain agents can be mixed with soils to enhance their cohesive properties.

Regular inspection is an often-overlooked yet vital preventative measure for protecting foundations against weather-related issues.

Observing Spring Rains That Affect Foundation Stability - Davidson County

1. wall
2. leak
3. property

Homeowners should periodically examine their basements or crawl spaces for signs of moisture intrusion such as dampness or mold growth. Early detection allows for timely intervention before minor issues escalate into costly repairs.

In conclusion, observing spring rains offers valuable insights into how precipitation impacts foundation stability. By adopting proactive measures such as proper drainage systems, strategic vegetation management, enhanced soil stability techniques, and consistent inspections—homeowners can safeguard their properties against future weather-related challenges while preserving both structural integrity and peace of mind throughout seasons yet to come.

About waterproofing

"Waterproof" redirects here. For other uses, see [Waterproof \(disambiguation\)](#).

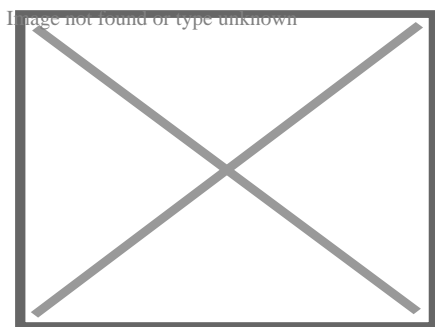
"Water protection" redirects here. For the environmental activism, see [Water protectors](#).

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Find sources: "Waterproofing" – news · newspapers · books · scholar · JSTOR (November 2019) (*Learn how and when to remove this message*)



Waterproofing conducted on the exterior of a freeway tunnel

Waterproofing is the process of making an object, person or structure waterproof or water-resistant so that it remains relatively unaffected by water or resisting the ingress of water under specified conditions. Such items may be used in wet environments or underwater to specified depths.

Water-resistant and *waterproof* often refer to resistance to penetration of water in its liquid state and possibly under pressure, whereas *damp proof* refers to resistance to humidity or dampness. Permeation of water vapour through a material or structure is reported as a moisture vapor transmission rate (MVTR).

The hulls of boats and ships were once waterproofed by applying tar or pitch. Modern items may be waterproofed by applying water-repellent coatings or by sealing seams with gaskets or o-rings.

Waterproofing is used in reference to building structures (such as basements, decks, or wet areas), watercraft, canvas, clothing (raincoats or waders), electronic devices and paper packaging (such as cartons for liquids).

In construction

[edit]

Further information: Weatherization and Basement waterproofing

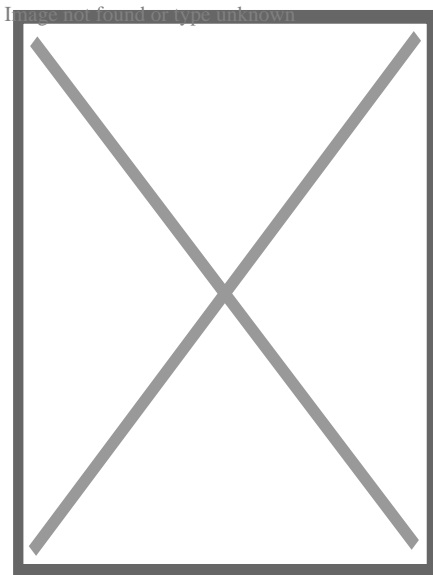
In construction, a building or structure is waterproofed with the use of membranes and coatings to protect contents and structural integrity. The waterproofing of the building envelope in construction specifications is listed under *07 - Thermal and Moisture Protection* within MasterFormat 2004, by the Construction Specifications Institute, and includes roofing and waterproofing materials.^[*citation needed*]

In building construction, waterproofing is a fundamental aspect of creating a building envelope, which is a controlled environment. The roof covering materials, siding, foundations, and all of the various penetrations through these surfaces must be *water-resistant* and sometimes waterproof. Roofing materials are generally designed to be water-resistant and shed water from a sloping roof, but in some conditions, such as ice damming and on flat roofs, the roofing must be waterproof. Many types of waterproof membrane systems are available, including felt paper or tar paper with asphalt or tar to make a built-up roof, other bituminous waterproofing, ethylene propylene diene monomer EPDM rubber, hypalon, polyvinyl chloride, liquid roofing, and more.

Walls are not subjected to standing water, and the water-resistant membranes used as housewraps are designed to be porous enough to let moisture escape. Walls also have vapor barriers or air barriers. Damp proofing is another aspect of waterproofing. Masonry walls are built with a damp-proof course to prevent rising damp, and the concrete in foundations needs to be damp-proofed or waterproofed with a liquid coating, basement waterproofing membrane (even under the concrete slab floor where polyethylene sheeting is commonly used), or an additive to the concrete.

Within the waterproofing industry, below-ground waterproofing is generally divided into two areas:

- Tanking: This is waterproofing used where the below-ground structure will be sitting in the water table continuously or periodically. This causes hydrostatic pressure on both the membrane and structure and requires full encapsulation of the basement structure in a *tanking membrane*, under slab and walls.
- Damp proofing: This is waterproofing used where the water table is lower than the structure and there is good free-draining fill. The membrane deals with the shedding of water and the ingress of water vapor only, with no hydrostatic pressure. Generally, this incorporates a *damp proof membrane* (DPM) to the walls with a polythene DPM under the slab. With higher grade DPM, some protection from short-term Hydrostatic pressure can be gained by transitioning the higher quality wall DPM to the slab polythene under the footing, rather than at the footing face.



Waterproofing with two component system

In buildings using earth sheltering, too much humidity can be a potential problem, so waterproofing is critical. Water seepage can lead to mold growth, causing significant damage and air quality issues. Properly waterproofing foundation walls is required to prevent deterioration and seepage.

Another specialized area of waterproofing is rooftop decks and balconies.

Waterproofing systems have become quite sophisticated and are a very specialized area. Failed waterproof decks, whether made of polymer or tile, are one of the

leading causes of water damage to building structures and personal injury when they fail. Where major problems occur in the construction industry is when improper products are used for the wrong application. While the term *waterproof* is used for many products, each of them has a very specific area of application, and when manufacturer specifications and installation procedures are not followed, the consequences can be severe. Another factor is the impact of expansion and contraction on waterproofing systems for decks. Decks constantly move with changes in temperatures, putting stress on the waterproofing systems. One of the leading causes of waterproof deck system failures is the movement of underlying substrates (plywood) that cause too much stress on the membranes resulting in a failure of the system. While beyond the scope of this reference document, waterproofing of decks and balconies is a complex of many complimentary elements. These include the waterproofing membrane used, adequate slope-drainage, proper flashing details, and proper construction materials.

The penetrations through a building envelope must be built in a way such that water does not enter the building, such as using flashing and special fittings for pipes, vents, wires, etc. Some caulking is durable, but many are unreliable for waterproofing.

Also, many types of geomembranes are available to control water, gases, or pollution.

From the late 1990s to the 2010s, the construction industry has had technological advances in waterproofing materials, including *integral waterproofing systems* and more advanced membrane materials. Integral systems such as hycrete work within the matrix of a concrete structure, giving the concrete itself a waterproof quality. There are two main types of integral waterproofing systems: the hydrophilic and the hydrophobic systems. A hydrophilic system typically uses a crystallization technology that replaces the water in the concrete with insoluble crystals. Various brands available in the market claim similar properties, but not all can react with a wide range of cement hydration by-products and thus require caution. Hydrophobic systems use concrete sealers or even fatty acids to block pores within

the concrete, preventing water passage.

Sometimes the same materials used to keep water out of buildings are used to keep water in, such as a pool or pond liners.

New membrane materials seek to overcome shortcomings in older methods like polyvinyl chloride (PVC) and high-density polyethylene (HDPE). Generally, new technology in waterproof membranes relies on polymer-based materials that are very adhesive to create a seamless barrier around the outside of a structure.

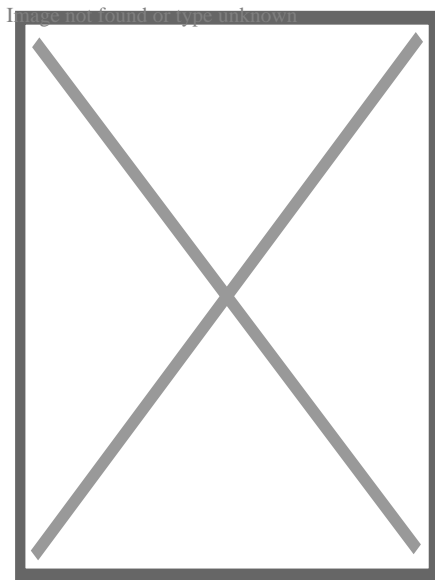
Waterproofing should not be confused with roofing, since roofing cannot necessarily withstand hydrostatic head while waterproofing can.

The standards for waterproofing bathrooms in domestic construction have improved over the years, due in large part to the general tightening of building codes.

In clothing

[edit]

Main article: [Waterproof fabric](#)



A wax coating makes this Manila hemp waterproof

Some garments, and tents, are designed to give greater or lesser protection against rain. For urban use raincoats and jackets are used; for outdoor activities in rough weather there is a range of hiking apparel. Typical descriptions are "showerproof", "water resistant", and "waterproof".^[1] These terms are not precisely defined. A showerproof garment will usually be treated with a water-resisting coating, but is not rated to resist a specific hydrostatic head. This is suitable for protection against light rain, but after a short time water will penetrate. A water-resistant garment is similar, perhaps slightly more resistant to water but also not rated to resist a specific hydrostatic head. A garment described as waterproof will have a water-repellent coating, with the seams also taped to prevent water ingress there. Better waterproof garments have a membrane lining designed to keep water out but allow trapped moisture to escape ("breathability")—a *totally* waterproof garment would retain body sweat and become clammy. Waterproof garments specify their hydrostatic rating, ranging from 1,500 for light rain, to 20,000 for heavy rain.

Waterproof garments are intended for use in weather conditions which are often windy as well as wet and are usually also wind resistant.

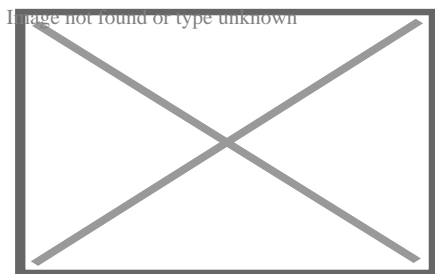
Footwear can also be made waterproof by using a variety of methods including but not limited to, the application of beeswax, waterproofing spray, or mink oil.^[2]

In other objects

[edit]

Waterproofing methods have been implemented in many types of objects, including paper packaging, cosmetics, and more recently, consumer electronics. Electronic devices used in military and severe commercial environments are routinely conformally coated in accordance with IPC-CC-830 to resist moisture and corrosion but encapsulation is needed to become truly waterproof. Even though it is possible to find waterproof wrapping or other types of protective cases for electronic devices, a new technology enabled the release of diverse waterproof smartphones and tablets in 2013.^[3] This method is based on a special nanotechnology coating a thousand times thinner than a human hair which protects

electronic equipment from damage due to the penetration of water. Several manufacturers use the nano coating method on their smartphones, tablets, and digital cameras.



A water droplet on a superhydrophobic surface

A 2013 study found that nanotextured surfaces using cone forms produce highly water-repellent surfaces. These nanocone textures are *superhydrophobic* (extremely water-hating).^{[4][5]}

Applications

[edit]

Waterproof packaging or other types of protective cases for electronic devices can be found. A new technology enabled the release of various waterproof smartphones and tablets in 2013.^[6] A study from 2013 found that nano-textured surfaces using cone shapes produce highly water-repellent surfaces. These "nanocone" textures are superhydrophobic.^{[7][8]}

Standards

[edit]

- ASTM C1127 – Standard Guide for Use of High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane with an Integral Wearing Surface
- ASTM D779 – Standard Test Method for Determining the Water Vapor Resistance of Sheet Materials in Contact with Liquid Water by the Dry Indicator Method

- ASTM D2099 – Standard Test Method for Dynamic Water Resistance of Shoe Upper Leather by the Maeser Water Penetration Tester
- ASTM D3393 – Standard Specification for Coated Fabrics Waterproofness
- D6135 – Standard Practice for Application of Self-Adhering Modified Bituminous Waterproofing
- ASTM D7281 – Standard Test Method for Determining Water Migration Resistance Through Roof Membranes
- British Standards Institution BS.8102:2009 – "Protection of Below Ground Structures against Water from the Ground".
- IEC 60529 – Degrees of protection provided by enclosures (IP Code)
- ISO 2281 – Horology — Water-resistant watches

See also

[edit]

- Saint-Gobain
- Bituminous waterproofing
- Building insulation
- Durable water repellent (DWR) coatings
- IP Code (used on mobile phones)
- Sika AG
- Soundproofing
- Truscon Laboratories
- Water Resistant mark
- Waterproof fabric
- Waterproof paper

References

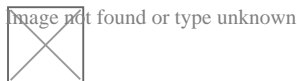
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1. ^ *Lucy Shakespeare, 09-09-2016 (9 October 2016). "The Difference Between Waterproof & Water Resistant – Inside the Outdoors". Mountain Warehouse. Retrieved 23 May 2017.*cite web: CS1 maint: numeric names: authors list (link)
2. ^ *"How to Waterproof Shoes". wikiHow. Retrieved 2020-04-14.*

3. ^ "Waterproof phones and tablets make a splash". CNN. March 5, 2013. Retrieved October 28, 2016.
4. ^ U.S. Department of Energy/Brookhaven National Laboratory (October 21, 2013). "Nano-cone textures generate extremely 'robust' water-repellent surfaces". ScienceDaily. Retrieved October 22, 2013.
5. ^ Checco, Antonio; Atikur Rahman; Charles T. Black (October 21, 2013). "Robust Superhydrophobicity in Large-Area Nanostructured Surfaces Defined by Block-Copolymer Self Assembly". *Advanced Materials*. **26** (6): 886–891. doi:10.1002/adma.201304006. PMID 24142578. S2CID 27585827.
6. ^ "Waterproof phones and tablets make a splash". CNN. 2013-03-05. Retrieved 2021-02-04.
7. ^ U.S. Department of Energy/Brookhaven National Laboratory. "Nano-cone textures generate extremely 'robust' water-repellent surfaces". ScienceDaily. Retrieved 2021-02-04.
8. ^ Checco, Antonio; Atikur Rahman; Charles T. Black (2014). "Robust Superhydrophobicity in Large-Area Nanostructured Surfaces Defined by Block-Copolymer Self Assembly". *Advanced Materials*. **26** (6): 886–891. Bibcode:2014AdM....26..886C. doi:10.1002/adma.201304006. PMID 24142578. S2CID 27585827.

External links

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Things To Do in Cook County

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Pullman National Historical Park

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The Art Institute of Chicago

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Pullman National Historical Park Visitor Center

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Millennium Park

4.7 (84556)

Photo

Navy Pier

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Willis Tower

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Driving Directions in Cook County

Driving Directions From Schaumburg to United Structural Systems of Illinois, Inc

Driving Directions From Hoffman Estates Park District to United Structural Systems of Illinois, Inc

Driving Directions From Goebbert's Farm - South Barrington to United Structural Systems of Illinois, Inc

Driving Directions From Bryan A. Bertoglio, MD to United Structural Systems of Illinois, Inc

Waterproofing service

Concrete contractor

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Driving Directions From Lake Katherine Nature Center and Botanic Gardens to United Structural Systems of Illinois, Inc

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Chris Abplanalp

(5)

USS did an amazing job on my underpinning on my house, they were also very courteous to the proximity of my property line next to my neighbor. They kept things in order with all the dirt/mud they had to excavate. They were done exactly in the timeframe they indicated, and the contract was very details oriented with drawings of what would be done. Only thing that would have been nice, is they left my concrete a little muddy with boot prints but again, all-in-all a great job

United Structural Systems of Illinois, Inc

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Paul Gunderlock

(4)

The staff was helpful, very nice and easy to work with and completed the work timely and cleaned up well. Communications faltered a bit at times and there was an email communications glitch which was no fault of anyone, but no big deal and all ended up fine. We sure feel better to have this done and hope that is the end of our structural issues. It does seem like (after talking to several related companies), that it would be great if some of these related companies had a structural engineer on staff vs using on the job expertise gained over years - which is definitely valuable! But leaves a bit of uncertainty - and probably saves money for both sides may be the trade-off? So far, so good though! Thank you.

United Structural Systems of Illinois, Inc

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Sarah McNeily

(5)

USS was excellent. They are honest, straightforward, trustworthy, and conscientious. They thoughtfully removed the flowers and flower bulbs to dig where they needed in the yard, replanted said flowers and spread the extra dirt to fill in an area of the yard. We've had other services from different companies and our yard was really a mess after. They kept the job site meticulously clean. The crew was on time and friendly. I'd recommend them any day! Thanks to Jessie and crew.

United Structural Systems of Illinois, Inc

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Jim de Leon

(5)

It was a pleasure to work with Rick and his crew. From the beginning, Rick listened to my concerns and what I wished to accomplish. Out of the 6 contractors that quoted the project, Rick seemed the MOST willing to accommodate my wishes. His pricing was definitely more than fair as well. I had 10 push piers installed to stabilize and lift an addition of my house. The project commenced at the date that Rick had disclosed initially and it was completed within the same time period expected (based on Rick's original assessment). The crew was well informed, courteous, and hard working. They were not loud (even while equipment was being utilized) and were well spoken. My neighbors were very impressed on how polite they were when they entered / exited my property (saying hello or good morning each day when they crossed paths). You can tell they care about the customer concerns. They ensured that the property would be put back as clean as possible by placing MANY sheets of plywood down prior to excavating. They compacted the dirt back in the holes extremely well to avoid large stock piles of soils. All the while, the main office was calling me to discuss updates and expectations of completion. They provided waivers of lien, certificates of insurance, properly acquired permits, and JULIE locates. From a construction background, I can tell you that I did not see any flaws in the way they operated and this an extremely professional company. The pictures attached show the push piers added to the foundation (pictures 1, 2 & 3), the amount of excavation (picture 4), and the restoration after dirt was placed back in the pits and compacted (pictures 5, 6 & 7). Please notice that they also sealed two large cracks and steel plated these cracks from expanding further (which you can see under my sliding glass door). I, as well as my wife, are extremely happy that we chose United Structural Systems for our contractor. I would happily tell any of my friends and family to use this contractor should the opportunity arise!

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Image not found or type unknown

Dave Kari

(5)

What a fantastic experience! Owner Rick Thomas is a trustworthy professional. Nick and the crew are hard working, knowledgeable and experienced. I interviewed every company in the area, big and small. A homeowner never wants to hear that they have foundation issues. Out of every company, I trusted USS the most, and it paid off in the end. Highly recommend.

Observing Spring Rains That Affect Foundation Stability [View GBP](#)

Check our other pages :

- [Identifying Freeze and Thaw Patterns in Foundation Movement](#)
- [Understanding the Structural Differences in Masonry Splits](#)
- [Assessing Widening Cracks Over Time](#)
- [Early Signs of Drainage Issues in Wet Climates](#)
- [Analyzing Stair Step Gaps in Block Foundations](#)

Frequently Asked Questions

How do spring rains contribute to foundation cracks?

Spring rains can lead to excess water accumulation around a homes foundation, causing soil expansion and contraction. This process can create or exacerbate existing cracks in the foundation as the pressure from shifting soil impacts structural integrity.

What signs should I look for after heavy spring rains indicating potential foundation issues?

After heavy spring rains, watch for signs like new or widening cracks in walls or floors, doors or windows that stick or don't align properly, uneven floors, and visible gaps between walls and ceilings. These may indicate underlying foundation problems exacerbated by rainwater.

How can I prevent further damage from spring rains affecting my foundation?

To prevent further damage, ensure proper drainage around your home by maintaining gutters and downspouts, grading the landscape away from the foundation, installing French drains if needed, and considering waterproofing solutions. Regularly inspect your property for any signs of water pooling near the foundation.

United Structural Systems of Illinois, Inc

Phone : +18473822882

City : Hoffman Estates

State : IL

Zip : 60169

Address : Unknown Address

Google Business Profile

Company Website : <https://www.unitedstructuralsystems.com/>

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